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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,142	08/21/2006	Yoshinori Kanagawa	060610	4400

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EXAMINER	
ORLANDO, MICHAEL N	
ART UNIT	**PAPER NUMBER**
4123	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,142	KANAGAWA ET AL.	
	Examiner	Art Unit	
	Michael N. Orlando	4123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/21/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. The specification exceeds the lengthy of 20 pages and is therefore considered to be lengthy.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 4, 5, 8, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 2003/0017322A1) in view of Satake et al. (US 2002/0018892A1).

Regarding claims 1 and 5, Kim teaches the process of producing a leather-like sheet with a leather-like skin layer (abstract) combined with a leather base material (abstract). Kim further teaches a hot melt polyurethane to be used for coating which is preferably made of a moisture-crosslinking type (i.e. isocyanate functional) ([0015]) and also recognizes that urethane prepolymers with isocyanate groups and a compound having alkoxysilyl groups are known ([0054]). Furthermore, a process is taught by Kim whereby a leather-like sheet can be produced by coating a film layer made of a film material on a peelable transfer sheet having a convexo-concave shape (i.e. indentations) reverse to a leather-like convexo-concave surface; forming a porous layer on the film layer; press-fitting a base material on the porous layer in an undried state; and peeling off the transfer sheet ([0016]). The porous layer is taught to be consistent of the hot melt polyurethane ([0014]). Kim also teaches that the resin mixture (polyurethane) also contains pigment ([0029]). It is recognized by the examiner that given the nature of the invention the pigment is clearly mixed in the melted state since it is clear from the teachings the components were in the liquid state. The film layer is

taught to be utilized for coating so one of ordinary skill in the art would have recognized this was implicit of a liquid, which would have been further emphasized from the fact that said film layer needed to penetrate the convexo-concave structures of the peelable transfer sheet ([0011]).

Kim fails to teach that said urethane resin composition contains a colorant with a polyol with a number average molecular weight within the range of 1,000 to 20,000.

Satake et al. teaches a specific method of coloring an aqueous adhesive, which is designed for use in manufacturing artificial leather (abstract). Colorants taught to be pigment particles coated with a waterborne polyurethane resin obtained by using dimerdiol or dimmer acid-type polyesterpolyol ([0052]). Given only the polyesterpolyols disclosed by Satake in the examples 1-4 (page 6) it is reasonable to conclude it was meant for the color to be mixed with similarly structured polyols, which clearly fall within the range of a number average molecular weight of 2,000-8,000; however, it is recognized by the examiner that Satake et al. explicitly discloses the claimed invention except for the applicable weight ranges. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have identified which ranges of molecular weigh were ideal, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller,* 105 USPQ)

It would have been obvious to one of ordinary skill in the art to have modified the pigment taught by Kim to contain colorants wherein the pigment particles are coated with a waterborne polyurethane resin obtained by using dimerdiol or dimmer acid-type

polyesterpolyol in light of Satake et al. because they were known to be the most preferable colorants for artificial leather manufacture ([0052]).

Regarding claim 4, the process of claim 1 is taught as seen above. Kim further teaches that said releasable substrate has an indention pattern. It is recognized by the examiner that the peelable transfer sheet (releasable substrate) having a convexo-concave shape reverse to a leather-like convexo-concave surface ([0011]) is analogous to indentations.

Regarding claim 8, the process of claim 1 is taught as seen above. Kim further teaches the moisture crosslinkable hot melt polyurethane can also have alkoxysilyl groups ([0054]). The examiner recognizes that alkoxysilyl groups are hydrolysable by nature and this would have been understood by one of ordinary skill in the art at the time of the invention. It is further recognized that said groups would inherently be in a functional position where their functionality can be properly realized and it would have therefore been well understood to one of ordinary skill in the art to include them at the terminal ends where they can be crosslinked effectively.

Regarding claim 10, the process of claim 1 is taught as seen above. Kim further teaches that the base resin, which contains self-crosslinkability due to the presence of isocyanate groups is present in the amount of 1.5-4 wt% of the base resin. It is recognized by the examiner that the term base resin is used in reference to the polyurethane dispersion ([0014]).

Regarding claim 11, the process of claim 1 is taught as seen above. Kim teaches the porous base layer has viscosity in the range of 5,000-35,000 cps ([0033]). It is

recognized by the examiner that the conversion factor between centipoises and millipascals is 1cps to 1mPas. Aside from not providing the temperature at which the measurements were taken, the viscosities taught by Kim fall within the claimed range.

Kim fails to explicitly teach the hot-melt urethane prepolymers with a melt viscosity at 125°C measured using a cone-plate viscometer, within the range of 100 to 100,000 mPas. It is recognized by the examiner that measuring the viscosity using a cone-plate viscometer is merely one method of measuring and since the range can be measured using other means it is not given weight in the claim limitations on the basis of being a personal preference rather than a defining limitation.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized urethane prepolymers with viscosities at 125°C within the range of 100 to 100,000 mPas given the ranges taught by Kim because it would have been understood that the viscosities taught by Kim were in reference to the melted hot melt. One of ordinary skill in the art would have recognized that hot melts are solid at room temperature and the viscosity measurements taught by Kim would have been taken once the hot melt had been melted and was properly in the working state and ready for coating. Given the ranges taught by Kim, the understanding of hot melts that would have been known by those of ordinary skill in the art and the medially substantial changes in viscosity relative to temperature it would have been obvious to utilize urethane prepolymers with viscosities at 125°C within the range of 100 to 100,000 mPas.

Regarding claim 12, the process of claim 1 is taught as seen above. Kim further teaches that the fibrous layer has a porous resin layer on the surface thereof (figure 5).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 2003/0017322A1) in view of Satake et al. (US 2002/0018892A1) and further in view of Nakamura et al. (US 4,764,426).

Regarding claim 3 the process of claim 1 is taught as seen above. As discussed above Kim fails to teach a colorant which contains a polyol with a number average molecular weight of between 1,000 and 20,000, but this was shown to be an obvious characteristic, which has already been taught by Satake et al. Satake et al. although disclosing the generalized concept fails to specifically call for the polyol to be consistent of polyoxyalkylene glycol.

Nakamura et al. teaches the use of polyoxyalkylene glycol in the production of polyester synthetic fiber (column 1, lines 31-37).

It would have been obvious to one of ordinary skill in the art to have recognized the generalized concept taught by Kim and Satake and expanded the specific incorporation of the polyol to include polyoxyalkylene glycol in view of Nakamura et al. because it was known that said polyoxyalkylene glycol has antistatic properties (column 1, lines 31-37), which would been recognizably ideal for the manufacture of clothing items and clothing accessories where static is a concern.

7. Claims 2, 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 2003/0017322A1) in view of Kato et al. (US 6,479,153).

Regarding claims 2, 7 and 9, the process of claim 1 is taught as seen above. Kim teaches isocyanates for moisture crosslinkability.

Kim fails to explicitly teach xylylene diisocyanate as the polyisocyanate utilized for moisture crosslinkability.

Kato et al. teaches that the process for producing a leather-like sheet (abstract) wherein the polyurethane component utilized is generally obtained by reacting a macromolecular polyol with an organic diisocyanate (column 11, lines 30-36). Kato et al. specifically teaches as a preferable polyol, polytetramethylene glycol (column 12, 19-21), and as a preferable organic diisocyanate, xylylene diisocyanate (column 13, 1-4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have expanded upon the invention taught by Kim and specifically used xylylene diisocyanate as the polyisocyanate and polytetramethylene glycol as the polyol in view of light of the teachings of Kato et al. since they are both form the same field of endeavor (leather-like sheet construction) and the information taught by both would have been well understood to those in the field. Furthermore, the leather-like sheet produced with the said polyurethane taught by Kato was known to possess excellent softness, good hand feel and physical properties like those of natural leather (column 3, lines 1-7). It is recognized by the examiner that Kato et al. teaches the claimed invention except for the polyol comprising of at least 40% by mass of polytetramethylene glycol. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized such a range given the teachings of Kato et al., since it has been held that where the

general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller,* 105 USPQ). Also recognized by the examiner is the fact that the glass transition temperature of the hot-melt urethane polymer would inherently be within the range of –70°C and 25°C since given the rational above the prepolymers that is taught would be made up of the same components.

Regarding claim 6, the process of claim 2 is taught as seen above. Kim et al. fails to teach that the process of claim 2 also comprising a polyester polyol.

Kato et al. teaches the polyurethane consisting of macromolecular polyols as discussed above and further states that they may include, polyester polyols in addition to the previously discussed polyether polyol, polytetramethylene glycol (column 11, lines 30-37). It is explicitly taught that the polyurethane can be prepared by using one or more of the mentioned polyols and as such it would be well within the scope of the invention to further include a polyester polyol in conjunction with the previously discussed polytetramethylene glycol.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have expanded upon the invention taught by Kim and specifically used multiple macromolecular polyols in light of the teachings of Kato et al. since they are both form the same field of endeavor (leather-like sheet construction) and the information taught by both would have been well understood to those in the field. Furthermore, the leather-like sheet produced with the said polyurethane taught by Kato

was known to possess excellent softness, good hand feel and physical properties like those of natural leather (column 3, lines 1-7).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Matsumoto et al. (US 4,551,518), Takeyama et al. (US 2003/0039772A1), Adachi et al. (US 6,322,851), Nakanishi (US 2003/0203146A1) and Tadokoro et al. (US 2006/0079589A1) were all found to be pertinent, but were not in the formulation of the arguments above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael N. Orlando whose telephone number is (571)-270-5038. The examiner can normally be reached on Monday-Friday, 7:30am-5:00pm, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on (571)272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MO

JOSEPH DEL SOLE
SUPERVISORY PATENT EXAMINER
10/22/07